

REMARKS

Reconsideration of the present application is kindly requested in view of these remarks. Claims 1-12 are currently pending, with claims 1 and 4 being independent claims.

PRIORITY DOCUMENTS

As the Examiner is aware, this application is the national phase under 35 U.S.C. § 371 of PCT International Application No. PCT/DE99/03377 which has an international filing date of October 21, 1999. According to United States Patent and Trademark Office practice, Applicant is not required to file certified copies of the German priority application. Instead, copies of the certified copies of the priority documents (e.g., the PCT application) should have been received from the International Bureau.

As evidenced by the 371 ACCEPTANCE LETTER, attached hereto, Applicant believes that all necessary priority documents have been received by the United States Patent and Trademark Office.

DRAWINGS

Applicant acknowledges the Examiner's acceptance of the drawings filed October 19, 2001.

WITHDRAWAL OF PREVIOUS REJECTIONS

Applicant acknowledges the withdrawal of the previous rejections.

REJECTION UNDER 35 U.S.C. § 103(a)

The Examiner rejects claims 1-6, 8, 10 and 14 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Azima et al. (U.S. Patent No. 6,198,831, hereinafter "Azima") in view of Makivirta et al. (EP 0 567 061, hereinafter "Makivirta"). This rejection is respectfully traversed.

Azima discloses a panel form combination loudspeaker/microphone for use in interactive environment. The loudspeaker/microphone combination comprises a rectangular frame carrying a resilient suspension around its inner periphery supporting a distributed mode sound radiating panel.

As shown in FIGS. 3 and 4 of Azima, a transducer (9) is mounted only and exclusively on (or in) the panel (9) at a predetermined location. The position of the predetermined location is calculated such that bending waves are launched into the panel (2). The bending waves cause the panel (2) to resonate and radiate an acoustic output. The transducer (9) is driven by a signal amplifier.

For use as a sound receiver or microphone the panel (2) also carries a pair of vibration transducers (63) coupled in parallel. The pair of vibration transducers (63) drive a signal receiver and conditioner (65) connected to an output. Another vibration transducer (63) on the panel (2) is coupled to drive a filter/correlator (64). The output of the filter/correlator (64) is fed to the signal receiver and conditioner (65) for signal correction.

On one hand, the signal correction disclosed in Azima applies to the **microphone use of the panel** not the loudspeaker use. Azima is silent about the details of the correction method performed by the filter/correlator (64) driven by a vibration transducer (63) during loudspeaker use of the panel (2). Even if details of the signal correction method were disclosed, Azima fails to teach how a signal is corrected and how that correction is applied to the input signal of the panel (2) when used as a loudspeaker.

In addition, the skilled artisan would have no reason nor would he/she have been motivated to look to correct the input signal for the panel when used as a loudspeaker as in Azima. The acoustic output of the loudspeaker disclosed in Azima is already optimized by placing a transducer (9) on (or in) the panel (2) at a predetermined location. According to the disclosure the sound-output is best, if the position of the transducer (9) is calculated as described in U.S. patent application serial nos. 09/011,773, 09/011,770 and 09/011,831. See, Azima col. 2, ll. 48-56. Thus, given the disclosure of Azima

the skilled artisan would not have reason, nor would he/she have been motivated to look to improve the sound quality of the panel loudspeaker at all.

Moreover, even assuming *arguendo* that the skilled artisan did have reason to look to improve the sound quality of the panel loudspeaker of Azima, Azima fails to suggest that the signal correction applied in the microphone use of the panel could or should be applied during loudspeaker use of the panel (2).

Makivirta discloses a method and a system for reproducing audio frequencies in a sound reproduction system. The sound reproduction system comprises at least one wideband one-way loudspeaker (5) mounted in a loudspeaker cabinet. The frequency response (1) of the loudspeaker system is equalized by a filter (4). The filter (4) is a wideband filter.

In operation, the wideband filter (4) measures the frequency response (1) of the loudspeaker system and approximates inverse response (2) based on the measurement results. The inverse response (2) is used by the filter (4) to equalize the variations of the frequency response (1) of the loudspeaker (5).

In Makivirta, an FIR filter is designed such that the response is an inverse of the amplitude response of the loudspeaker system between selected frequencies. The wideband filter (4), substantially covering the desired audio range and being a digital filter, is implemented in a digital signal processor programmed to implement a desired transfer function.

That is, Makivirta refers to a sound reproduction system with a **conventional membrane-type loudspeaker** (i.e., sound radiating from a **point-like sound source**). The conventional membrane-type loudspeaker is arranged in a loudspeaker cabinet such as the housing of a TV set. In this type of sound reproduction system, sound is corrected because the audio output of conventional membrane-loudspeakers is heavily influenced by its installation in a cabinet, e.g., housing of a TV set or a mobile telephone.

At the time the invention was made, however, the skilled artisan would never have expected that equalization of the frequency response of a conventional membrane-type loudspeaker system as disclosed in Makivirta may have similar effects when applied to a flat panel loudspeaker. Nowhere

does Makivirta mention or suggest that the disclosed equalization method is appropriate for flat panel loudspeakers.

As will be appreciated from the above discussion, from both a technical and a physical point of view conventional membrane-type loudspeakers (as in Makivirta) and flat panel loudspeakers (as in Azima) are very different. As such, it cannot be expected that, at the time the invention was made, the same signal correction methods could be equally applicable to both loudspeaker types.

For at least the above reasons, Applicant submits that the skilled artisan would clearly not have been motivated to look to Makivirta for the deficiencies of Azima with regard to claims 1 and 4. Thus, the rejection under 35 U.S.C. § 103(a) is improper because the Examiner has failed to establish a *prima facie* case of obviousness for the alleged combination of Makivirta and Azima. Withdrawal of this rejection is kindly requested.

Claims 2, 3, 5, 6, 8, 10 and 14 are allowable at least by virtue of their dependency from claims 1 or 4.

ADDITIONAL REJECTIONS UNDER 35 U.S.C. § 103(a)

Additionally, the Examiner has rejected claims 7, 9, 11 and 12 under 35 U.S.C. § 103 as being unpatentable over Azima, Makivirta and further in view of Smith et al. (GB 2,265,519, hereinafter "Smith"). Applicant respectfully traverses these rejections for at least the reasons set forth above. Further, even assuming *arguendo* that Smith could be combined with either one or both of Azima and Makivirta (which Applicant does not admit), they would still fail to makeup for the previously mentioned deficiencies set forth with regard to independent claims 1 and 4 of the present application. Accordingly, withdrawal of all outstanding objections and rejections is respectfully requested.

CONCLUSION


In view of above remarks, reconsideration of the outstanding rejection and allowance of the pending claims is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Andrew M. Waxman, Reg. No. 56,007, at the number of the undersigned listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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